

REMARKS

Claims 1-19 are pending in the application. Claims 1-17 and 19 have been rejected and claim 18 has been objected to. The Applicant has not amended the claims.

The Applicant has carefully considered the Office Action mailed on November 8, 2007 and responds to the specific issues raised by the Examiner as follows:

Rejection Under 35 U.S.C. 102

Claims 10-12 have been rejected under 35 U.S.C. 102(a) as being anticipated by U.S. Publication No. 2005/0151368 to Heim ("Heim"), which discloses a security element having a multilayer construction that is embedded in a document so that it is recognizable from both sides of the document. Section 102 reads in part:

A person shall be entitled to a patent unless—

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent.

In rejecting claims 10-12 under 35 U.S.C. 102(a), the Examiner has cited Heim, which was published in the U.S. on July 14, 2005, and implicitly found that Heim was published "before the invention thereof by the applicant for patent." However, the present application was filed on July 8, 2005 and claims priority from PCT/DE2004/000007, filed on January 20, 2004, and German Patent Application No. 10305288.7-45, filed on February 10, 2003. Thus, Heim was not published in this country before the invention by the Applicant and the Applicant respectfully requests that the rejection of claims 10-12 as anticipated by Heim be withdrawn.

Moreover, even if Heim were found to be prior art with respect to the present application, Heim does not anticipate claims 10-12. Contrary to the findings in the Office Action, Heim does not teach or suggest that the surface of the film and the surface of the substrate are tactilely distinguishable. The Office Action compares the claims to the disclosure in Heim and states at page 2, lines 19-22 that:

[T]he film has a surface nature which is markedly different from the surface nature of the substrate in a manner that can be determined by means of the human sense of touch (Paragraph 0049; **diffraction elements have a much different texture from paper**). (Emphasis added.)

There is no support in paragraph [0049] of Heim for the conclusion that “diffraction elements have a much different texture from paper.” The Applicant is submitting herewith a copy of U.S. Patent No. 4,913,858 to Miekka, et al. (“Miekka”), which is titled “Method of embossing a coated sheet with a diffraction or holographic pattern.” This patent is a method for embossing a coated sheet to provide a diffraction pattern or hologram and it describes the textures of paper and diffraction elements at col. 7, lines 1-25:

The **surface roughness of the base paper 10**, that is, the average peak-to-valley surface height variation, **will typically vary from about 1.0 to about 3.0 microns** for clay-coated papers suitable for coating. However, rougher paper sheets 10 may also be used. For example, sheets 10 having surface peak-to-valley roughness of up to 5.0 microns, or even higher may also be used, particularly if the thermoplastic coating 11 is applied at high solids content as by extrusion or hot-melt methods.

After the thermoplastic coating 11 is applied, but before embossing, the surface roughness ($t_1 - t_2$) will typically be somewhat lower than the surface roughness of the base paper 10 alone. It has been determined that the surface roughness ($t_1 - t_2$), after the base coating 11 has been applied, may typically be about 70 to 90 percent of the original base paper roughness. Thus the surface roughness ($t_1 - t_2$), after coating 11 has been applied, may typically be between about 0.7 microns to

about 3.0 microns and as high as about 5.0 microns. After embossing, the embossing depth illustrated schematically in FIG. 5b is less than the original coated-surface roughness ($t_1 - t_2$). **The embossing pattern depth d_4 will be less than 1.0 micron and may vary typically from about 0.1 micron to about 0.5 micron more usually between about 0.2 to about 0.4 micron.**

(Emphasis added.)

Miekka teaches that “surface roughness of the base paper . . . will typically vary from about 1.0 to about 3.0 microns for clay-coated papers suitable for coating and that “[t]he embossing pattern depth d_4 will be less than 1.0 micron and may vary typically from about 0.1 micron to about 0.5 micron.” Therefore, the difference between the surface roughness of the paper and the embossing pattern is less than about 2-3 microns or less than about 2-3 thousandths of a millimeter. Such a small difference between the surface variations would not be detectable by the human sense of touch.

Moreover, the Examiner’s finding at page 2, lines 21-22 that the “Paragraph 0049; diffraction elements have a much different texture from paper” is not supported by paragraph [0049] in Heim, which states:

FIG. 2 shows security document 1 from FIG. 1 in cross section along line II-II through the patch. Viewing such a bank note in reflected light, for example with it resting on a base, **the diffraction effects stand out distinctly**. Viewed in transmitted light, the diffraction effects are hardly perceptible. Both in reflected light and in transmitted light the color shift effect at different viewing angles is retained. (Emphasis added.)

Heim discloses that visually the “the diffraction effects stand out distinctly” but Heim neither teaches nor suggests that “the film has a surface nature which is markedly different from the surface nature of the substrate in a manner that can be determined by means of the human

sense of touch” as required by claim 10. One of ordinary skill in the art would appreciate that diffraction effects can be caused by structures having a depth of less than 1 micron and “may vary typically from about 0.1 micron to about 0.5 micron more usually between about 0.2 to about 0.4 micron.” See Miekka, col. 7, lines 22-25.

The Office Action has also found claim 10 to be unpatentable based on the disclosure in paragraph [0057] of Heim that the security element substrate is embossed to form a holographic surface. Page 3, lines 1-3 of the Office Action states that “the film is three-dimensionally embossed at least region-wise to produce a particular structure (Paragraph 0057; the additional lacquer layer embossed on the A₁ layer).” Embossments to form a holographic surface provide structures which generate specific optical effects by refraction or reflection. Such structures have only a very small depth in the range of the wavelength of visible light, which means a depth of usually less than one micron. As discussed above, Miekka teaches that the depth is “usually between about 0.2 to about 0.4 micron.” Such structures cannot be determined by means of the human sense of touch. Therefore, embossing a substrate to form a holographic surface will not change the surface structure of the substrate so that it can be distinguished from the remaining surface areas of the substrate by means of the human sense of touch.

With regard to claim 11, the Examiner has found that Heim discloses in Figure 3 (item 6) that “the security document has a plurality of window-like openings 6 which can be felt in respect of size and configuration by means of the human sense of touch.” Office Action, page 3, lines 8-10. The Applicant respectfully disagrees with this finding because Figure 3 of Heim only

discloses a document (e.g., a banknote) with a windowed security *thread*. The specific nature of such a thread is that its size is very small. Consequently, the window areas 6 for viewing the threads will also be very small; too small for the sizes and configurations of the openings in the substrate to be felt by the human sense of touch. Moreover, claim 10, upon which claim 11 depends, requires that, “the opening is covered by a film fixed on a surface of the substrate.” FIG. 3 of Heim shows the thread 4 imbedded in the substrate. Thus, claim 11 is not anticipated by FIG. 3 of Heim.

Regarding claim 12, the Examiner has found that Heim discloses that the security thread is below the windows 6 with at least two sizes. One of ordinary skill in the art would not find that Figure 3 teaches or suggests that the security thread or the windows 6 can have at least two sizes. When looking at Figures 1 and 3, it is absolutely clear that the “windows,” in which the security thread 4 can be seen, all have the same size. Accordingly, there is no support for finding that the “openings are of differing configuration and/or size.”

Rejection Under 35 U.S.C. 103

Claims 1, 2, 6-9, 13, 14, 16, 17 and 19 have been rejected as obvious over U.S. Publication No. 2005/0012326 to Keller et al. (“Keller”) in view of Heim. Keller discloses a security element with at least one plastic layer and two metal layers. The Examiner states in the first two paragraph of page 5 of the Office Action that Keller does not disclose a security element with gaps but Heim does disclose such gaps.

The Applicant assumes that the Examiner has found Keller qualifies as prior art under Section 102(a) in the same manner as Heim. Keller was published in the United States on January 20, 2005. As discussed above in relation to Heim, the present application was filed on July 8, 2005 and claims priority from PCT/DE2004/000007, filed on January 20, 2004, and German Patent Application No. 10305288.7-45, filed on February 10, 2003. Thus, Keller was not published in this country before the invention by the Applicant s required under Section 102(a). Therefore, neither Heim nor Keller are prior art to the present invention and the Applicant respectfully requests that the rejection of claims 1, 2, 6-9, 13, 14, 16, 17 and 19 as obvious in view of Heim and Keller be withdrawn.

Moreover, even if Heim and Keller were prior art with respect to the present invention, claims 1, 2, 6-9, 13, 14, 16, 17 and 19 would not be obvious in view of a combination of these references. Although Keller discloses some of the features of the security elements in the claims, Keller does not disclose “openings [in the security element] through which the surface of the substrate can be felt” required by claim 1. This deficiency in Keller is acknowledged by the Examiner at the top of page 5 of the Office Action which states:

Keller does not disclose that the film has openings through which the surface of the substrate can be felt and wherein the substrate has at least one surface region of a surface nature which differs in relation to the surrounding surface of the substrate, and at least one opening.

Heim discloses a substrate S having a security element 4 wherein a gap 9 exists in the security element that exposes the substrate. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide the gaps of Keller all the way to the substrate **in order to have clear patterns and encodings in the security thread.**

(Citations omitted. Emphasis added.)

The Applicant respectfully disagrees with the Examiner's finding. The Examiner has found that FIG. 8 of Heim discloses a gap 9 that exposes the substrate S. However, Heim discloses in paragraph [0057] that: "Transparent substrate S, preferably a plastic foil, has on one side embossed holographic surface relief 8 that is overlaid directly by interference element I." Heim further discloses in paragraph [0060] that: "Since the interference layers each have only a layer thickness of under one micron (the figures rendering the layer structure only schematically), all layers have the same relief pattern as relief structure 8 on which the layers are vapor-deposited." Accordingly, one skilled in the art would understand that substrate S is part of the security element and it is not the document onto which the security element is affixed as the Examiner has found. Moreover, the gaps in a security thread that extend to the surface of the "substrate of the security element" in FIG. 3 of Heim would not allow the nature of the surface of the underlying document to be determined by means of the human sense of touch.

In combining Heim and Keller, the terminology used in the two references has apparently caused confusion. Most notably, Heim uses the term "substrate" to describe the document (e.g., a bank note) to which the security element is affixed and Heim also uses the term to describe the plastic foil or base layer of the security element. This confusion in the terminology is readily apparent in claim 1 of Heim which reads:

1. A security document, or semifinished product for producing **the security document, comprising a substrate (1)** with first and second opposing substrate surfaces and a multilayer security element (2, 4) that is so connected with the substrate (1) that it is visually recognizable at least from one of the two substrate surfaces, wherein **the security element includes a multilayer interference element (I) producing a color shift effect and a layer (S)** with diffraction structures (8) that at least partly overlaps the interference element (I),

characterized in that the security element is semitransparent, the interference element (I) has gaps in at least one layer, and the diffraction structures (8) directly adjoin the interference element (I).

(Emphasis added.)

The “layer (S)” referred to in claim 1 is the plastic foil carrier layer of the security element and the “(S)” is an abbreviation of the word “substrate.” Paragraph [0057] of Heim discloses that the “layer (S)” is the substrate of the security element and not the “substrate” to which the security element is affixed.

[0057] FIG. 5 shows a detail in cross section of the layer structure of security element 2. Security element 4 can be constructed accordingly. **Transparent substrate S, preferably a plastic foil**, has on one side embossed holographic surface relief 8 that is overlaid directly by interference element I.

(Emphasis added.)

Thus, when the Examiner found that “Heim discloses a substrate S having a security element 4 wherein a gap 9 exists in the security element that exposes the substrate,” the “substrate” in Heim which the Examiner referred to was the “substrate of the security element,” not the substrate of the document to which the security element is affixed. The gap in the “security element substrate” does not create an opening which would allow the nature of the surface of the underlying document to be examined using the human sense of touch. The “substrate of the security element” taught by Heim forms a barrier which prevents contact with the surface of the document. Therefore, Heim does not disclose that the film has openings through which the surface of the substrate can be felt and Heim does not overcome the deficiency in Keller that the Examiner has acknowledged.

Claims 3-5 have been rejected as obvious over Keller in view of Heim and U.S. Patent No. 4,534,398 to Crane ("Crane"). Crane discloses a security paper document that incorporates optical variable devices (OVD) in a carrier layer and then applies the carrier layer and OVD onto a base web made of paper. The Examiner has found in the third paragraph on page 7 of the Office Action that: "Crane discloses a film security element 10, 11 for a security document 16 wherein the security document substrate is made of paper as well as the security element." However, Crane does not teach that the film has openings through which the surface of the substrate can be felt and, therefore, fails to overcome the deficiencies in Heim and Keller that are discussed in detail above.

Crane teaches that element 10 is a plastic OVD (col. 2, lines 60-61 and 64-65) attached to the paper carrier layer 11 by an adhesive 12 (FIG. 1). When the carrier layer and OVD are applied to a paper web, there is an intermixing of the carrier fibers and the base web fibers (col. 4, lines 2-10) so that the "carrier fibers and base fibers are compacted together" (col. 4, lines 22-23). However, the carrier paper composition includes "non-cellulose fibers such as 30% polyvanilidine [*sic*] chloride" (col. 3, lines 22-23). Therefore, the security element disclosed by Crane is not entirely made from paper and includes non-cellulose fibers and a plastic OVD. In addition, Crane neither teaches nor suggests that the carrier layer and the base web have "markedly different surface properties which can be determined by means of the human sense of touch" as required by claim 3.

Crane only concerns a method of applying an OVD (consisting of plastics) to a paper carrier and teaches that one of the conditions for good adhesion of the OVD to the paper web is that the carrier paper 13 covers the whole (inner) surface of the OVD 10 (as can be seen from FIGs. 4 and 5 of Crane). Only in such a configuration will the OVD 10 be firmly attached to the paper web 15. Therefore, Crane teaches away from applying the OVD (or a plastic film) to a paper substrate in the area of a window in the substrate as required by the claims.

Claim 15 has been rejected as obvious over Keller in view of Heim and further in view of U.S. Patent No. 5,582,103 to Tanaka ("Tanaka"). Tanaka discloses a method for making an anti-counterfeit latent image that includes forming forwardly curved portions on a surface of the substrate and corresponding recesses on the opposing surface. However, Tanaka does not teach that the film has openings through which the surface of the substrate can be felt and, therefore, fails to overcome the deficiencies in Heim and Keller that are discussed in detail above.

Allowable Subject Matter

The Examiner has objected to claim 18 but found that it would be allowable if rewritten in independent form and included all of the limitations of claims 1 and 17. The Applicant respectfully submits that the arguments made with respect claim 1 have distinguished the cited prior art references and elects not to rewrite claim 18 in independent form at this time.

Conclusion

The Applicant respectfully submits that the amendments to the claims and the arguments made herein have distinguished the cited references from the present invention and requests early allowance of the claims. If the Examiner has any questions or comments relating to this Response, the Examiner is respectfully invited to contact Applicant's attorney at the telephone number provided below.

Respectfully submitted,

A handwritten signature in black ink, reading "Kevin E. McDermott", written over a horizontal line.

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